RAMBOLL ENVIRON

ENVIRONMENT
& HEALTH

MILLER CHEMICAL ENVIRONMENTAL STATUS REPORT

Miller Chemical, Hanover, Pennsylvania
Date: November 24, 2015

To: Kathy Horvath, PADEP
Richard Kaiser, PADEP
Brian Moore, PADEP
Glen Whisler
Barbara Carbaugh
Joan Mcanall

Cc: Tony Hartlaub, Miller Chemical
Charlie Svec, Miller Chemical
Andrew Durrschmidt, Miller Chemical

During the time period from November 8, 2015 through November 22, 2015, the following environmental activities were conducted in relation to the Miller Chemical site:

Act 2 Activities:

- Ramboll Environ modified Figure 6 of the Act 2 Off-Site Soil Sampling and Analysis Plan (the "Plan") to add one additional sediment sample location within the fire water flow path, north of the Family First Health property.
- Ramboll Environ revised portions of the Act 2 Off-Site Soil Sampling and Analysis Plan (the "Plan") to respond to additional comments provided by Mr. Whisler. The revised Plan will be submitted to PADEP following confirmation from Mr. Whisler that his comments have been adequately addressed.
- Ramboll Environ performed soil sampling activities in accordance with the Plan for the Bare Development, Family First Health, and Trone properties. Soil sampling on these properties was completed on November 20, 2015.

Environmental Monitoring:

- Ramboll Environ conducted weekly stream sampling on November 12, 2015 and November 19, 2015. Recent stream sampling results, through November 12, are attached to this status report. The next stream sampling event will be conducted on December 3, 2015. Please note that we have now received the three outstanding ortho-phosphate results from the 10/29 stormwater sampling event. Ortho-phosphate was measured at levels of 890 ug/L (Storm Water NW Corner), 1,900 ug/L (Storm Water US), and 1,100 ug/L (Storm Water DS), which is consistent with the previously reported stormwater sampling results for 10/28. Note that, in order to more accurately reflect the quality of the surface water and stormwater samples, the generic benchmarks previously included in the tabular summary have been updated with the stormwater benchmarks developed by Ramboll Environ and approved by PADEP.

- Ramboll Environ continued to maintain and monitor remote in-stream monitors in Slagles' Run.
- Ramboll Environ continued to collect rainfall data via a remote weather monitoring station at the site. Rainfall data for the Hanover rain gauge are included in the tabular summary of surface water sample results. Precipitation recorded at the site during the past 2 weeks includes: 11/10 1:30 – 0.29 inches over 17 hours; 11/12 7:45 – 0.23 inches over 2.75 hours; 11/19 3:45 – 0.15 inches over 6.25 hours.

Permits and Authorizations:

- Ramboll Environ submitted a copy of the draft PASPGP-4 cumulative impacts screening form, and restoration plan to the USACE on November 10, 2015 in support of obtaining authorization to conduct preliminary restoration activities within the Dry Creek on the Whisler property. Revised versions of the plan were submitted to USACE on November 11, 2015 and on November 13, 2015 following receipt of comments from Mr. Whisler and USACE. USACE provided federal authorization for conduct of the restoration activities on November 16, 2015. This letter was signed by Miller and Conewago Enterprises on November 19, 2015.
- Ramboll Environ submitted a revised Erosion and Sediment Control Plan for off-site properties on November 9, 2015 to address comments discussed in the field on October 20 or provided in inspection reports provided by Rusty Adams (Adams County CD) dated October 20 and 30, 2015. Based on comments provided by Mr. Adams on November 12, a revised ESC was submitted on November 16, 2015 to reflect changes to the control measures (e.g., installation of a rock filter) and to correct ESC details that he had approved in the field.
- Miller Chemical retained JMT to complete a formal delineation of wetland areas that could potentially be affected by the proposed restoration and sampling activities in support of the permit application for the permanent creek crossing. Survey results were received on November 18, 2015.
- Ramboll Environ submitted a GP-7 Application and supporting materials to PADEP in support of obtaining a permit for construction of a permanent creek crossing on the Whisler Property on November 19, 2015.

Off-Site Activities

- Representatives of Miller Chemical, Ramboll Environ, and Conewago participated in a conference call to discuss the restoration activities for the Whisler property; restoration activities are scheduled to begin on November 23, 2015.
- Conewago installed a rock filter at the northern end of the Dry Creek on the Whisler property at the request of Adams County Soil Conservation Service.

On-Site Activities:

- Miller Chemical continues to manage soils excavated as part of the on-site re-construction effort via disposal at an off-site facility. Thirty truckloads of soil were disposed at the Modern Landfill during the reporting period.
- A small volume of water that accumulated in a former concrete equipment pit beneath the former Miller Chemical warehouse was pumped into a frac tank prior to excavating a footer in that portion of the site. The water will be tested to determine appropriate disposal options.

Upcoming Activities:

- Off-site restoration activities on the Whisler property will be initiated on November 23, 2015; activities are anticipated to be completed during the week of November 30, 2015.
- Surface soil sampling on the Whisler and Vulcan Materials properties is anticipated to begin during the week of November 30, 2015 and will continue during the week of December 6, 2015.
- Ramboll Environ submitted a GP-7 Permit application for construction of a permanent creek crossing to PADEP on November 19, 2015. Ramboll Environ will coordinate with Conewago to schedule the construction of the creek crossing upon receipt of the permit. Subsurface soil sampling on the Whisler property will be scheduled upon receipt of the permit and will be conducted after construction of the creek crossing is completed.
- Analytical results for soil samples collected through November 20, 2015 are being processed by the laboratory. Laboratory analytical results for the Bare Development, Trone, and Family First Health properties are expected by December 18, 2015.
- Surface water sampling will be conducted on December 3, 2015.

Recent Surface Water Sampling Results (DRAFT VERSION reflecting data received to date - may be revised or updated)		Creek Pit	Creek Pit	Creek Pit	Creek Pit	Slagle upstream	Slagle upstream	Slagle upstream	Slagle upstream	Slagle downstream 2	Slagle downstream 2	Slagle downstream 2	Slagle downstream 2	Hanover Intake	Hanover Intake	Hanover Intake	Hanover Intake
		11/5	11/5	11/12	11/12	11/5	11/5	11/12	11/12	11/5	11/5	11/12	11/12	11/5	11/5	11/12	11/12
Analyte	**Stormwater Benchmark (ug/L)**	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals
Aluminum	-	ND	ND	ND	ND	ND	ND	ND	97	ND	ND	ND	ND	88	ND	100	ND
Antimony	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	850	1.6	1	1.5	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	-	30	28	31	29	41	43.5	27	25	42	43	42	42	43	46	44.5	43
Beryllium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron	-	140	120	110	110	15	15	12	ND	19	19	17	12	28	29	27.5	25
Cadmium	34.5	2.8	2.7	2.3	2.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	-	73000	-	72000	-	70500	-	42000	-	77000	-	76000	-	60000	-	59500	-
Chromium	-	ND	ND	ND	ND	ND	ND	1.3	0.94	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	1650	180	180	120	140	ND	ND	ND	ND	1.8	1.6	ND	0.73	1.4	1.5	1.1	1.05
Copper	1000	56	54	42	38	0.575	ND	2.3	2	1.3	1.1	1.3	0.81	2.7	1.9	2.2	1.85
Iron	118000	520	190	500	290	ND	ND	190	110	64	ND	130	ND	120	ND	225	ND
Lead	450	10	10	7.7	7.2	ND	ND	ND	0.5	ND	ND	ND	ND	0.58	ND	ND	ND
Magnesium	-	9600	-	9400	-	11000	-	5900	-	11000	-	11000	-	14000	-	14500	-
Manganese	87500	170	97	240	190	13.5	12	24	20	27	22	26	16	11	2.2	13	2.45
Mercury	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Molybdenum	-	1.3	1.4	1.7	1.3	ND	ND	ND	ND	ND	ND	ND	ND	0.73	1.1	1.05	1.045
Nickel	6900	89	84	80	77	ND	ND	ND	0.86	1.4	1.3	ND	0.7	1.5	1.4	1.2	1.1
Potassium	-	6300	6200	5500	6000	2350	2400	1300	1300	2300	2200	2300	2300	3900	4100	3900	4050
Selenium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	-	15000	13000	13000	14000	34000	34500	20000	19000	33000	36000	33000	31000	20000	21000	18000	18000
Thallium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	7900	140	120	110	99	10.5	ND	30	25	18	12	ND	12	25	10	22	12.5
Sulfate	-	32300		29000		21300		8500		18200		16000		26800		26000	
Chloride	-	26900		26000		77100		42000		77200		77000		41300		34000	
Phosphorus, Total (as P)	-	320		140		43		ND		62		ND		83		ND	
Ortho-Phosphate (as P)	-	100		120		3.4		ND		3.4		ND		6.8		ND	
Nitrogen, Ammonia (as N)	50500	67		ND		ND		ND		ND		ND		31		ND	
Nitrite (as N)	-	ND		ND		ND		ND		ND		ND		ND		ND	
Nitrate (as N)	-	2100		850		2550		980		2300		1900		2700		2400	
Nitrogen, Nitrate-Nitrite	-	-		-		-		-		-		-		-		-	
Nitrogen, Total Kjeldahl	-	900		1000		ND		ND		ND		500		ND		400	
Total Organic Carbon	-	1500		5200		1850		3400		1900		2300		1800		1750	
Alkalinity, Total (CaCO3)	-	231000		190000		173500		86000		181000		160000		121000		150000	
Chemical Oxygen Demand	-	10000		ND		5000		ND		4000		ND		6000		ND	
Total Dissolved Solids	21645479	-		-		-		-		-		-		-		-	
Total Organic Halides (TOX)	-	14.8		ND		13		23.6		12.5		52.8		11.2		ND to 21.7	
Temperature (˚C)	-	17.68		11.5		20.15		12.73		19.42		12.29		14.7		12.88	
pH (Std units)	-	8.11		7.5		8.38		7.83		7.77		7.74		7.55		7.75	
ORP (mV)	-	175		175		143		158		191		170		200		174	
Conductivity (mS/cm)	-	0.387		0.432		0.46		0.301		0		0.535		0		0.419	
Turbidity (NTU)	-	2.6		0		2.3		2.8		105		0		108		5.7	
DO (mg/L)	-	15.28		-		9		-		8.55		-		8.5		-	
Total Hardness (Mg+Ca as CaCO3)	-	220000		220000		225000		130000		240000		240000		210000		205000	
Daily Rainfall Hanover Gage (in)		0.00	0.00	0.17	0.17	0.00	0.00	0.17	0.17	0.00	0.00	0.17	0.17	0.00	0.00	0.17	0.17

1) No results exceeded the stormwater benchmarks developed using PADEP's PENTOX model.
2) '"-" means not sampled or not yet received; "ND" means not detected

Recent Surface Water Sampling Results (DRAFT VERSION reflecting data received to date - may be revised or updated)		South Branch upstream	South Branch upstream	South Branch upstream	South Branch upstream	South Branch downstream	South Branch downstream	South Branch downstream	South Branch downstream	NOMA Intake	NOMA Intake	NOMA Intake	NOMA Intake
		11/5	11/5	11/12	11/12	11/5	11/5	11/12	11/12	11/5	11/5	11/12	11/12
Analyte	**Stormwater Benchmark (ug/L)**	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals	Total Metals	Dissolved Metals
Aluminum	-	57	ND	ND	ND	72	190	ND	ND	66	ND	ND	ND
Antimony	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	850	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	-	28	31	31	30	39	37	37	36	38	38	34	34
Beryllium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Boron	-	12	13	13	ND	46	48	36	33	49	56	32	32
Cadmium	34.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Calcium	-	44000	-	39000	-	52000	-	50000	-	50000	-	47000	-
Chromium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cobalt	1650	ND	ND	ND	ND	0.72	0.74	ND	0.58	0.63	0.65	ND	ND
Copper	1000	0.85	0.74	1	1	1.8	1.6	1.9	1.7	1.7	1.6	2	1.5
Iron	118000	120	56	150	ND	130	ND	210	ND	120	ND	170	ND
Lead	450	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Magnesium	-	7600	-	7700	-	11000	-	11000	-	11000	-	10000	-
Manganese	87500	16	9	17	14	13	6.5	16	11	22	13	21	17
Mercury	-	ND	0.12	ND	ND	ND	ND	ND	ND	ND	0.12	ND	ND
Molybdenum	-	ND	ND	ND	ND	0.52	0.62	ND	0.71	0.51	0.65	ND	0.55
Nickel	6900	ND	ND	ND	0.67	0.92	0.85	ND	0.75	0.8	0.77	ND	0.78
Potassium	-	2700	2900	3000	3000	5600	4800	6100	6600	5900	6000	6300	6300
Selenium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	-	8500	7500	8600	8300	18000	17000	20000	20000	19000	18000	19000	19000
Thallium	-	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	7900	11	ND	ND	ND	14	ND	20	13	16	ND	ND	13
Sulfate	-	13300		13000		24700		21000		25900		21000	
Chloride	-	23500		21000		33800		32000		33200		32000	
Phosphorus, Total (as P)	-	130		ND		190		ND		180		ND	
Ortho-Phosphate (as P)	-	ND		ND		6.8		ND		14		ND	
Nitrogen, Ammonia (as N)	50500	ND		ND		301		ND		33		ND	
Nitrite (as N)	-	ND		ND		ND		ND		100		ND	
Nitrate (as N)	-	3600		2600		3500		2300		3500		2400	
Nitrogen, Nitrate-Nitrite	-	-		-		-		-		-		-	
Nitrogen, Total Kjeldahl	-	ND		500		ND		600		ND		4800	
Total Organic Carbon	-	3000		3300		2400		2800		2700		3300	
Alkalinity, Total (CaCO3)	-	87000		77000		133000		120000		133000		110000	
Chemical Oxygen Demand	-	6000		ND		9000		ND		7000		ND	
Total Dissolved Solids	21645479	-		-		-		-		-		-	
Total Organic Halides (TOX)	-	ND		ND		13.2		14.2		19		19.3	
Temperature (˚C)	-	14.32		11.27		14.73		10.69		14.71		11.92	
pH (Std units)	-	8.12		7.53		8.01		7.4		6.94		6.33	
ORP (mV)	-	179		173		199		185		227		222	
Conductivity (mS/cm)	-	0.231		0.261		0.35		0.39		0.364		0.359	
Turbidity (NTU)	-	3.4		0		8.1		0		6.4		6.9	
DO (mg/L)	-	8.41		-		8.3		-		7.34		-	
Total Hardness (Mg+Ca as CaCO3)	-	140000		130000		180000		170000		170000		160000	
Daily Rainfall Hanover Gage (in)		0.00	0.00	0.17	0.17	0.00	0.00	0.17	0.17	0.00	0.00	0.17	0.17

1) No results exceeded the stormwater benchmarks developed using PADEP's PENTOX model.
2) '"-" means not sampled or not yet received; "ND" means not detected